

# Knowledge and attitudes regarding smoking: a health education experiment with Malay college students

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## Summary

This study investigated whether knowledge and attitudes of Malay college students regarding smoking can be positively influenced by educational intervention. The experiment included a pretest to assess the students' knowledge and attitudes regarding smoking, a lecture on the health risks associated with smoking, and a posttest given six weeks later to assess whether any changes had occurred. A profile of the typical Malay student smoker was also elicited. Twenty-seven percent of the study population were smokers. Of the men in the sample, 44% were smokers, while less than 4% of the women were smokers. T-tests indicated that knowledge of the health risks associated with smoking was significantly improved for most groups, while attitudes towards smoking were essentially unchanged.

*Key words:* Smoking, Malay college students, knowledge, attitudes.

## Introduction

The use of tobacco is one of the foremost public health problems in the world today.<sup>1</sup> Cigarette smoking is known to be associated with many forms of malignancy, particularly lung and oral cancers, chronic lung and cardiovascular diseases,<sup>2</sup> and has been identified as one of the primary risk factors for the development of coronary heart disease.<sup>3</sup> For women and children, smoking poses special risk factors, as smoking during pregnancy has been associated with low birth weight, shortened gestation, higher perinatal mortality, higher rates of spontaneous abortion, and more frequent complications of labour and delivery.<sup>1,4-7</sup> In the developed countries, tobacco related disease subtracts five to ten years from the life of the average male smoker. Recent estimates suggest that tobacco use accounts for almost 2.5 million deaths worldwide every year.<sup>8,9</sup>

As rigorous anti-smoking campaigns and health education efforts have led to declining cigarette markets in developed countries, the international tobacco industry has refocused its marketing efforts upon consumers of the developing world.<sup>10-13</sup> Annual average increases of 3.9% in tobacco sales, roughly three times that of developed countries, have been recorded in recent years.<sup>14</sup> Already in 1978 a WHO Expert Committee on Smoking Control warned that without strong and resolute government actions, within a decade the smoking epidemic would spread from economically developed to developing countries, further widening the already enormous gap in levels of health between the industrialised countries and many developing countries.<sup>10</sup> Evidence of increases in smoking-related diseases is now appearing in developing countries. Lung cancer is already as common among cigarette smokers in developing countries as in

developed countries. In some countries, such as Malaysia and Bangladesh, lung cancer among men ranks among the top three cancer killers. Among women, especially in rural India, traditional forms of tobacco have become a leading cause of death from oral cancer.<sup>15</sup> In China and India, the two most populous nations on earth, from one quarter to one third of all males are addicted to tobacco smoking by the time they are 18 to 20 years old.<sup>16</sup>

Malaysia is one of the few developing countries where some governmental anti-smoking policies have been instituted. Direct advertising of cigarettes on television has been banned, smoking in governmental offices and schools is prohibited, and health warnings are required on cigarette packets. Anti-smoking campaigns (no-smoke weeks) have been presented yearly since 1987.<sup>17-19</sup> However, despite these governmental efforts to reduce smoking rates, cigarette smoking is increasing. A 1975 survey reported that 20% of the Malaysian adult population smoked, while a later survey in 1986 reported that 28.8% of the population were smokers.<sup>17,19</sup>

Since the Malaysian government had already started the process of educating its populace regarding the adverse effects of smoking, Malaysia seemed an appropriate site in the developing world to investigate whether health education efforts on smoking, directed towards young persons, could facilitate improvement in knowledge and attitudes regarding smoking. It was assumed that such a study would render useful information on directions for health education and prevention programs.

Over the past 20 years, numerous health education and prevention programs regarding smoking have been reported. Although the impact of these individual, public and private efforts to discourage smoking is difficult to establish, growing evidence suggests a collective demonstrable effect, particularly on the prevalence of smokers.<sup>20</sup> More recent health education research suggests that in addition to stressing the long term effects of smoking upon health, emphasis must also be given to the social influences associated with the development of the smoking habit.<sup>21</sup>

An educational experiment was designed which included: (a) a pretest to assess the study population's knowledge and attitudes regarding smoking, (b) a lecture providing factual information on the health risks associated with smoking, and the social influences associated with the development of the smoking habit, (c) a posttest given six weeks later to assess whether any changes had occurred. A profile of the typical Malay student smoker was also elicited.

## **Methods**

The study population consisted of 233 first and second year undergraduate Malay college students who were formally enrolled in social science and English classes at the Institut Teknologi Mara (MUCIA/Indiana University Project) in Shah Alam. This two year program prepares Malay students for engineering, science and general studies. As the study involved three components (pretest, lecture and posttest) it was not feasible to utilise a random sample drawn from the entire student body. The study population was chosen since these students had sufficient English language skills, the English and social science instructors were willing to have their students participate in the project, and the students were accessible for the subsequent lecture and posttest.

A structured, self administered survey instrument was designed, based on various instruments reported in the literature, which addressed the areas of knowledge and attitudes regarding

smoking. The instrument included 14 questions assessing knowledge of the adverse effects of smoking, 11 questions on personal feelings and reactions towards smoking, a profile of smokers, and eight questions measuring the smokers' attitudes towards stopping smoking. The instrument also included demographics on age, gender, marital status and education, as well as a section which assessed input from parents, siblings, friends and teachers which discouraged smoking. The instrument was pilot tested on 25 Malaysian medical students who provided feedback regarding language comprehension, difficulty of terminology, and whether the questions were culturally and locally appropriate.

A lecture of one hour duration was developed based on information presented in the literature on the health risks associated with smoking. The intent of the lecture was to increase the students' knowledge, from a global perspective, regarding the adverse health effects of smoking. Specifically, the lecture addressed the following areas:

- Health risks associated with active and passive smoking – immediate and long term consequences.
- Smoking statistics for developed and developing countries.
- Smoking statistics for Malaysia – who are the smokers?
- Reasons why people smoke – how cigarettes work.
- Social influences – family, friends and personality in the development of the smoking habit.

The pretest was administered to the students during the fall semester of 1989 in the individual English and social science classes. The students were assured that their participation in the study was voluntary, and their responses would be confidential. The following week, the identical lecture on the health risks associated with active and passive smoking was presented to each of the English and social science classes by the same presenter, during a regularly scheduled class period. To minimise variation in the presentation of the lecture, the content was completely delineated and presented verbatim. The presenter attempted to standardise the manner of delivery of the material for all nine lectures. Six weeks later the posttest was given to those students who had previously completed the pretest.

## Results

One hundred ninety-six completed pretests were obtained, rendering a response rate of 84%. Fifty-seven percent of the respondents were men, while 43% were women, and the average age was 19.7 years. Forty-two percent of the students were in their first year, 58% were in their second year, and none were married. The smoking rate for this group of students was 27%. Of the men in the sample, 44% were smokers, while less than 4% of the women were smokers. Sixty-one percent reported that their father smoked when they were growing up, with the rate for mothers being 6%. On a scale of 1 through 5 (1 = strongly agree, ..., 5 = strongly disagree) the students reported that they received the most encouragement not to smoke from their mothers (mean = 1.75) and fathers (mean = 2.08), while they received the least encouragement from friends (mean = 2.78) and brothers (mean = 2.66).

The posttest, which was administered only to those students who had responded to the pretest, had a response rate of 83%.

A reliability analysis (Cronbach's  $\alpha$ ) was applied to the knowledge and attitude categories on

the pretest to determine the appropriateness of constructing composite scales in each of these categories. The results yielded  $\alpha = .84$  and  $\alpha = .79$ , respectively. Thus composite scales were introduced by computing the average of the scores in each category.

T-tests were performed on the composite knowledge and attitude variables to test for significant differences in mean scores between pretest and posttest. This analysis was performed separately

**Table 1**  
**T-tests for differences in means on knowledge and attitudes, pretest versus posttest:**  
**Total sample and according to gender and smoking status.**

	Pretest Mean	Posttest Mean	T-value	Sig. Level
<b>Total Sample</b>	(N = 194)	(N = 160)		
Knowledge	2.11	1.93	3.27	0.001
Attitudes	1.97	1.96	0.17	0.861
<b>Women</b>	(N = 83)	(N = 63)		
Knowledge	1.90	1.69	3.30	0.001
Attitudes	1.77	1.74	0.32	0.748
<b>Men</b>	(N = 110)	(N = 95)		
Knowledge	2.27	2.08	2.46	0.015
Attitudes	2.12	2.11	0.12	0.904
<b>Nonsmokers</b>	(N = 142)	(N = 130)		
Knowledge	1.97	1.84	2.37	0.018
Attitudes	1.79	1.81	- 0.37	0.711
<b>Smokers</b>	(N = 51)	(N = 33)		
Knowledge	2.49	2.29	1.89	0.063
Attitudes	2.48	2.50	- 0.19	0.846
<b>Men Nonsmokers</b>	(N = 61)	(N = 62)		
Knowledge	2.10	1.98	1.28	0.204
Attitudes	1.85	1.90	- 0.50	0.617
<b>Men Smokers</b>	(N = 49)	(N = 33)		
Knowledge	2.48	2.29	1.79	0.078
Attitudes	2.46	2.50	- 0.32	0.752
<b>Women Nonsmokers</b>	(N = 80)	(N = 63)		
Knowledge	1.88	1.69	2.99	0.003
Attitudes	1.74	1.74	0.00	0.999

**Scale**

- 1 = Strongly Agree
- 2 = Agree
- 3 = Undecided
- 4 = Disagree
- 5 = Strongly Disagree

for the total sample, as well as according to gender and smoking status. Table 1 depicts these results.

The profile of the smokers indicated that 53% had begun smoking at the age of 14–15 years, while another substantial group (27%) started when they were 17–18 years old. Thus over half the smokers had already been smoking for 4–5 years. Consumption however was moderate, with 92% indicating they smoked 1–15 cigarettes per day. Seventy percent indicated that they always inhaled, while 28% sometimes inhaled. Ninety-eight percent smoked western brand cigarettes, however little data was obtained on the nicotine content of the cigarettes smoked, since many students indicated that this information did not appear on the cigarette packets.

On the pretest, eighty-two percent of the smokers indicated the desire to stop smoking, and 68% had previously attempted to stop. However when asked to indicate when they intended to quit, 73% gave the rather indefinite and unconvincing response “sometime”, while 76% indicated that their attitude towards quitting was either just “somewhat serious” or “not too serious”. Seventy-five percent stated that they thought they could successfully quit smoking. However 70% indicated that quitting would be either difficult or very difficult, and 66% reported that they would need either a great deal of help or at least some help. The preferred method for quitting was by slow reduction (76%). T-tests were performed to see if the smoker’s attitudes towards stopping smoking had changed significantly between pretest and posttest. No significant changes appeared.

## Discussion

The effects of the lecture on the health risks associated with smoking were most apparent in the knowledge category, where mean scores were significantly improved for the total sample, men, women, nonsmokers and women nonsmokers. In contrast, there were no significant changes in attitudes for any of the groups. It must be pointed out that the attitudes of the nonsmokers were already quite good as reported on the pretest, so it is not surprising that they did not improve significantly. However, the attitudes of the smokers became slightly more negative, and their attitudes towards stopping smoking were essentially unchanged. It appears that the health education lecture had very little impact on the students’ underlying attitudes. Perhaps a combination of methods; education coupled with real case studies, graphic depictions and preserved physical evidence of the effects of cigarette smoking, along with strong and visible support of respected community leaders, politicians and members of the scientific community would be more effective.

The smoking profile revealed that although the habit usually started in the mid teens, the current consumption rate was not very high, which seems to suggest that the habit in most cases was not yet firmly entrenched. But on the other hand; the low consumption rate may be more a reflection of the restrictions imposed against smoking on campus or in the hostels. Since 68% of the smokers had already attempted to quit smoking (obviously unsuccessfully), the habit seems to be more firmly entrenched than they realise. Perhaps the student smokers were a bit overconfident in their ability to stop smoking, however most of them were mature enough to realize that it would be a difficult process, and that they would need help.

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